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September-October 1983

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COVER: Navy diver EM2 Dan Westermeyer suits up in a Mark 12 diving system with the assistance of EA2 Paul Patterson at the Naval Medical Research Institute, Bethesda, MD. Hyperbaric medicine research is only one mission performed by the Naval Research and Development Command. Story on page 4. Photo by HM1 Kenton C. Smith.

Quality of Care: A Perception

The Surgeon General and I have just returned from touring our facilities in Europe and the Mediterranean. During those 2 weeks, I once again saw our medical teams working together under oftentimes difficult conditions. And yet, as usual, morale was high, the job was getting done, and we were even having some fun along the way. I salute those of you who are in the vital jobs overseas. You're doing a super job.

And I want to stress that we're doing pretty well overall. During the first three-quarters of this fiscal year, for example, our facilities worldwide handled nearly 9 million outpatient visits, admitted more than 170,000 patients, performed 16 million dental procedures, completed 26 million lab procedures, and filled 10 million pharmacy units. We provide a lot of care to a lot of people.

But I'm not the only one who thinks we're doing a good job. The following are quotes from letters I have received at the Headquarters:

- "Thank you very much for your note. I am receiving excellent medical care. I truly appreciate your concern."
- "Those who like myself have had the imperative need to use the facilities of this hospital, feel the need to loudly voice their deepest and most sincere gratitude. To the outstanding physicians, nurses, and corpsmen who not only showed their technical and professional capacities but who offer warmth and understanding, and made me feel calm and confident, I would like to express my everlasting gratitude."
- "Thank you for your thoughtfulness. Despite the circumstances which brought me to the hospital, it was an extraordinary experience of loving care on the part of the doctors, interns, nurses, and corpsmen. Thank you."

I not only appreciate comments like those, I agree with them wholeheartedly. That's the good news.

The news that is not so good is that we still have a problem with quality of care. I believe our quality of care is more than adequate. Yet many of our beneficiaries don't. Why? It's not that the actual treatment is not good; it's simply that some of our beneficiaries *perceive* the treatment is not good.

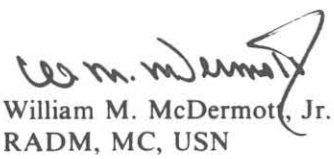
How do you change negative perceptions? I'm not sure we can without hiring a Madison Avenue public relations firm. But we *can* negate some of those impressions with good old bedside manner. This bedside manner starts the minute our patients walk in the door and continues until they leave. It's based on the cheerful smiles and personal attention that go hand-in-hand with actual medical treatment.

It has to do with sharp uniforms and military bearing. It means going out of our way to be helpful to our patients. It means taking the personal initiative to make *sure* things get done right—not using the cliche of "It's not my job." It means taking time to explain to patients what's going on, making sure they understand and accept what you're saying.

It means an awful lot of soft words and soothing gestures, hand-holding and back-patting. But after all, isn't that what the healing art is all about? When we signed aboard, didn't we all have a desire to help humanity? We were so eager to take on those who were sick and distressed, and help them set their lives straight again.

I want you to remember what that feeling was like—how good it felt to help someone else. And try to recall that feeling every morning when you're heading for work and the traffic's murder, and during the day when things aren't going quite so well.

I know we're as good as anyone else and better than many. But until our patients believe that, we still have some work to do.



William M. McDermott, Jr.
RADM, MC, USN

Navy Responds to Coalinga Earthquake

It has been several months since the little town of Coalinga in central California was rocked by a major earthquake measuring 6.7 on the Richter scale.

The quake struck 2 May 1983 at 4:42 p.m. and was felt as far away as Arizona and Nevada. Electrical power and telephone service were knocked out in an area 50 miles from the epicenter of the earthquake. Instantly, a call went out for help over the Amateur Radio Emergency Service from Coalinga.

LT Lyle Melton of the Naval Hospital Lemoore staff, monitoring his HAM radio receiver, heard the call and proceeded to the Naval Hospital to provide "ears and voice" during the initial period following the quake.

CAPT T.F. Levandowski, Commanding Officer of the Naval Hospital, immediately began the disaster recall plan. Minutes later, three ambulance teams, with medical officers on board, were sent to Coalinga, 40 minutes away. Having traveled through burning oil fields to reach Coalinga Hospital, the teams were greeted by injured persons filling the halls waiting to be treated by the hospital staff.

The first Navy ambulance to arrive was tasked with evacuating a victim suffering from a serious head injury, internal bleeding, and a broken arm. The second ambulance also evacuated a severely injured victim to a medical facility 50 miles from the disaster site. The third team provided assistance to a public health physician at an emergency medical center set up at the Coalinga Police Station. According to persons at the emergency center, the Navy's presence seemed to instill confidence that help had arrived and recovery was underway.

At the emergency center supplies were laid out and sawhorses were set up to support the gurneys. Hospital corpsmen assisted several victims of the quake, including a potential heart attack victim and an elderly blind patient whose home was severely damaged. They also notified the fire department of a gas leak they detected while providing assistance.

Back at the Naval Hospital events moved quickly. Previous disaster drills payed off. After inspecting the hospital for structural damage, all ambulatory patients and nonessential personnel were instructed to leave the facility to insure adequate medical treatment space for potential casualties.

The Naval Air Station (NAS) Lemoore gymnasium was also used by the disaster team for a triage area. Materials were readied and litter bearers and other medical support personnel stood by. NAS informed the hospital that a manpower pool was available as walking donors, litter bearers, and as security personnel.

Many valuable lessons were learned from this disaster:

- Because no life-support medications were on hand in the ambulances, a "Sparks Kit" containing life-support medications has been developed. The kit should be taken along in naval ambulances when physicians accompany the ambulance crews.
- Though checked daily, communications systems were undependable. A reliable emergency radio system is being explored.
- Telephone communications were lost on NAS. Pay phones continued to work; however, it was difficult to implement effectively the disaster recall plan via a pay phone system. The Quality Assurance and Disaster Control Committees recommended that some hospital phones be placed on emergency electrical power to resolve the internal communications problem. The project is nearly completed.

Left: Sights like this were everywhere following the devastating earthquake. Below: Naval Hospital Lemoore personnel cook and serve food to victims of the Coalinga earthquake.

Questions of concern brought up after the disaster include:

- What is an adequate number of folding canvas stretchers to have available?
- Is the security net for the hospital adequate to prevent unauthorized intrusion by local news media representatives?
- To what extent, if any, can civilian volunteers be utilized?
- Are disaster preparedness checklists up to date and available?

On 11 May 1983 Naval Hospital Lemoore personnel continued their support to a Red Cross mass-feeding program. The volunteers arrived at the Coalinga Elementary School cafeteria to cook and serve over 4,000 earthquake victims. They worked continuously throughout the day and into the evening. □

—Story and photos by LT Kenneth L. Hutton, MSC, NAVMEDCOM, Northwest Region, Naval Hospital, Oakland, CA.

CAPT T.F. Levandowski, Commanding Officer of Naval Hospital Lemoore, volunteers in the Red Cross mass-feeding program for victims of Coalinga.

NMRDC: Headquarters for Research and Development

LCDR Steven R. Lamar, MSC, USN

The Navy's biomedical research and development program is conducted at the Naval Medical Research and development Command (NMRDC) Naval Medical Command, National Capital Region, Bethesda, MD. NMRDC was established 1 July 1974 and is tasked with managing and coordinating Medical Department Research, Development, Test, and Evaluation (RDT&E) programs concerning the health, safety, and performance of Navy and Marine Corps personnel. NMRDC is under the command of the Naval Medical Command, Washington, DC.

Resource Acquisition Process

Funds are provided through RDT&E (Program 6) appropriations and are distributed over five different funding categories designated as: 6.1 Research, 6.2 Exploratory Development, 6.3 Advanced Development, 6.4 Engineering Development, and 6.5 Management and Support. NMRDC competes with other RDT&E claimants for resources within these categories through the POM (Program Objectives Memorandum) process.

Three sponsoring agencies are responsible for distributing these funds among Navywide claimants involved in RDT&E activities encompassing work in such diverse areas as electronic warfare, avionics, nuclear weapons, and biomedical support. Sponsors for each category are: 6.1 Chief of Naval Research, 6.2 Chief of Naval Development, and 6.3-6.5 Director, Research, Development, Test and Evaluation (OP-098). The scientific merit and responsiveness to operational requirements of ongoing programs within the current fiscal year are insured through several mechanisms including laboratory-level review, NMRDC program management review, and through documents submitted to sponsors and higher authorities.

Program Management

Total FY83 fiscal resources allocated to NMRDC amounted to $45,712,000 distributed among seven major program areas: submarine and diving medicine, electromagnetic radiation, human performance and aviation medicine, fleet health care systems, infectious diseases, fleet occupational health, and oral and dental health. All programs are managed by a full-time scientist/administrator responsible for coordinating the planning, development, and administration of all medical research and development activities within the program. Each of these major areas is described below.

Submarine and Diving Medicine Program. The submarine medicine component of this program concentrates on the health and safety of personnel during prolonged periods of exposure to the submarine environment and the enhancement of performance in critical tasks.

Major activities focus on defining exposure limits for submarine atmosphere contaminants, evaluating long-term health effects of undersea duty, and developing and evaluating a computer-based diagnosis/treatment system for use by corpsmen aboard nuclear submarines.

Recent accomplishments include the demonstration of cardiovascular deconditioning in crewmembers during extended submarine patrols and the commencement of sea trials of the computer-based diagnosis/treatment system for abdominal pain.

Diving medicine RDT&E objectives seek to provide biomedical technology to support diving operations, increase the safety and effectiveness of divers at current operational depths, and make available physiological information that will allow productive work to be performed at greater depths for longer times.

The program establishes safe and efficient decompression procedures, biomedical criteria for the design of underwater breathing apparatus, and the determination of improved therapy for decompression sickness and air embolism.

Work in these areas has resulted in a more precise definition of decompression time and depth limits for rescue of

LCDR Lamar is currently head of the Food Management Department, Naval Hospital, Bethesda, MD 20814.

submarine personnel from saturation air exposures, development of new drug therapies for reducing cardiovascular and neurological damage caused by air embolism, and the determination of an optimal oxygen pressure to treat spinal cord decompression sickness.

Electromagnetic Radiation Program. Characterizes and evaluates the hazards of exposure to various forms of electromagnetic radiation found in operational environments, and the development of electromagnetic radiation-based medical equipment to meet operational requirements.

Major programs include evaluating effects of microwave radiation on the central nervous system, determining distribution of absorbed energy in models exposed to electromagnetic radiation, and developing instruments to detect casualties and measure their vital signs at a distance.

Work supported in electromagnetic radiation absorption has contributed significantly to the development of national safety standards for personnel exposure to radiofrequency radiation.

Human Performance and Aviation Medicine Program. Concentrates on biomedical RDT&E activities in the areas of human performance (physical and cognitive) and aviation medicine that have the potential for resolving problems associated with the operational capability of Navy and Marine Corps personnel.

Activities include developing improved biomedical tests, procedures and standards for the performance assessment, selection, classification, diagnosis, treatment, and retention of personnel; determining effects of prescribed drugs on physical, physiological, and psychological function and on job performance; and determining effects of environmental stressors (such as heat, cold, noise, impact, and motion) on human performance and developing exposure thresholds and technologies that eliminate or mitigate their harmful effects.

Research in these areas has resulted in standardization and automation of disequilibrium tests for aviators, identification of subcortical structures involved in lethal effects of acceleration impact for the purpose of improving protective equipment (e.g., helmets and restraint systems), development of an impact measurement system for evaluating physiological hazards associated with aircraft ejections, and development of specifications for sonar headphones that significantly improve target detection.

Fleet Health Care Systems Program. Focuses on developing and improving the care and management of severely injured casualties and improving field and shipboard medical facilities, equipment, and logistical support and other technology concerned with the efficient delivery of health care. The program consists of five major components: blood/tissue transplantation, trauma management/surgery, cold injury/hypothermia, medical material, and medical information systems.

Programs include developing techniques for treating ionizing radiation casualties; examining synthetic oxygen-carrying compounds as possible blood substitutes; developing methods to accelerate and improve the quality of wound and nerve healing; developing medical equipment and supplies and evaluating procedures and methods of treating casualties during cold weather operations; developing and evaluating medical/surgical equipment and technologies to manage combat casualties and improve diagnosis, triage, and therapy; and determining the most effective command, control, and communication techniques for wartime evacuation and medical logistics coordination.

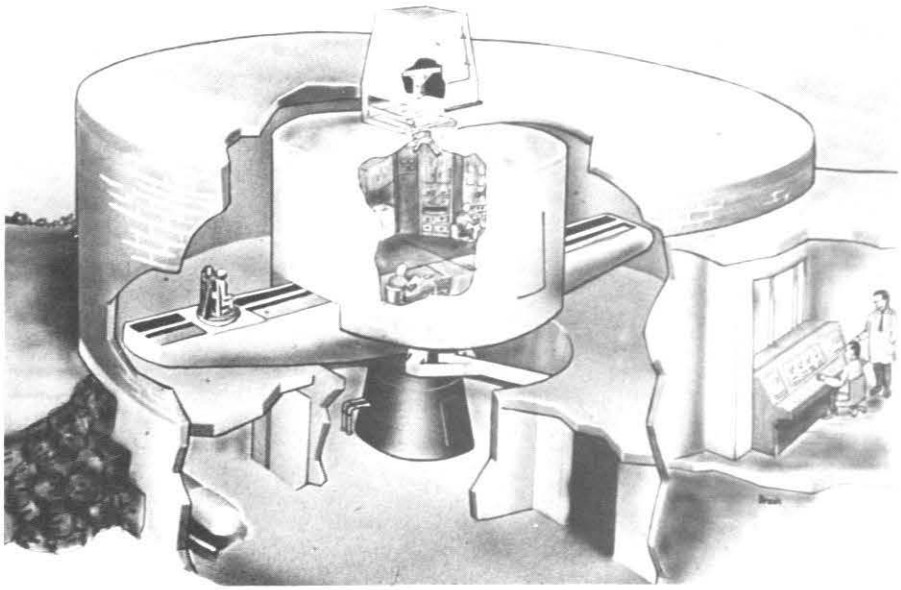
Recent major achievements include identification of a new approach to treating radiation casualties using hemopoietic stem cells, development of a laser-assisted microsurgical device for repairing blood vessels and nerves, fabrication of a prototype device for warming hypothermic casualties with radiofrequency radiation, and completion of a disease and injury reporting system for use in out-patient clinics.

Infectious Disease Program. Supported through reimbursable Army funding in response to a Congressional directive that the Army be designated as the lead agency for DOD RDT&E activity in this area. The program objectives include determining the etiology and epidemiology of infectious diseases that could have a serious impact on military personnel and investigating the pathogenic and immune mechanisms of disease agents in order to develop the optimal strategy for prevention or treatment.

Specific programs are directed toward developing a sporozoite-based vaccine against *Plasmodium falciparum* malaria using both conventional and recombinant DNA technologies, applying hybridoma technology to the production of protective antimalarial antibodies for short-term passive immunization, developing passive or active immunoprotection against major virulence factors of *Pseudomonas aeruginosa,* and evaluating the Navy-developed spherulin vaccine for Valley Fever in human volunteers.

These Navy-managed activities have resulted in a variety of accomplishments including the demonstration that non-living malaria sporozoite antigens stimulate protection, completion of a monograph on arboviruses infecting humans in Egypt, isolation of a mutant Rift Valley Fever virus strain that protects without producing viremia, identification of several new areas of

Photos by NMRDC



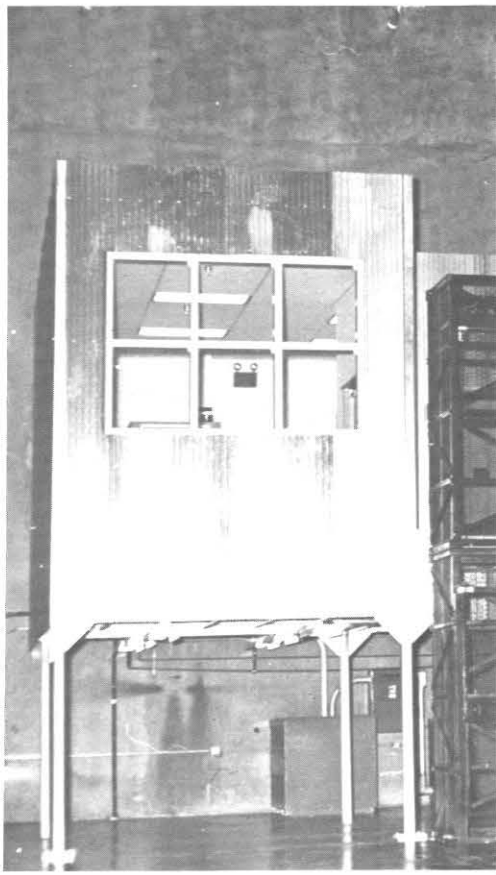


Figure 1. Acceleration platform employed for investigation of motion sickness. Right: Figure 2. Motion generator determines the physiological and performance effects of ship motion on naval personnel.

choloroquine-resistant malaria in Southeast Asia, and the demonstration that corticosteroids are important in the treatment of severe typhoid fever.

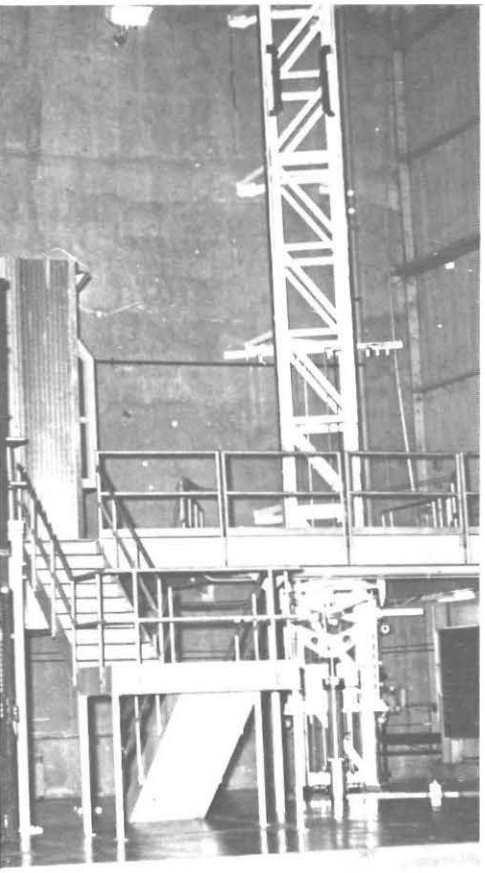
Fleet Occupational Health Program. Encompasses biomedical research and development related to toxicology, noise and hearing, thermal stress, occupational health information systems, chemical warfare defense, and other areas pertaining to occupational health.

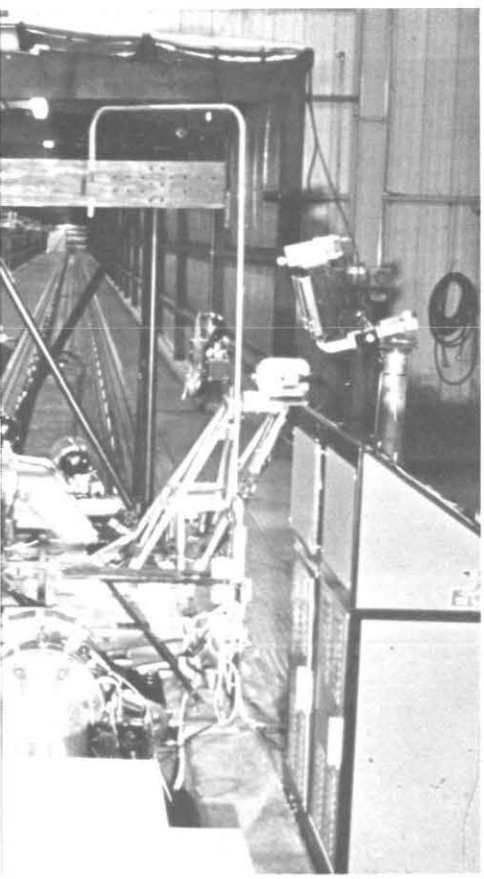
Major activities consist of developing information systems to provide accurate data on exposures, illness and injury rates, and the health status of selected Navy personnel; identifying toxicological and epidemiological information used to establish personnel exposure limits for specific chemicals, propellants, fuels, fluids, and combustion products; developing techniques and procedures for treatment and prevention of heat-related morbidity; improving methods and techniques for assessing health risks of noise exposure; and investigating the effectiveness of calcium blocking agents to enhance antidote protection against chemical warfare nerve agents.

Recent accomplishments include fabrication of a prototype portable carboxyhemoglobinometer, initiation of a field test for the Navy Occupational Health Information Monitoring System prototype, completion of evaluation for commercial hearing protection devices, and detection of parathion and a metabolite using continuous transepidermal monitoring in animal models.

Oral and Dental Health Program. The objectives are to improve operational readiness capability, as it is affected by deficiencies in oral and dental health, and to improve methods for oral and maxillofacial wound treatment. This latter objective has been consolidated into a single program, Combat Dentistry, with the Army designated as the lead agency. Current RDT&E efforts address issues concerning the diagnosis and prevention of oral disease, management of traumatic injury and surgical problems, and oral health care delivery.

Program content includes the development of cost-effective methods of arresting oral and dental disease, new methods and materials to prevent den-





tal emergencies to enhance the quality of dental care in the military, and equipment and facilities that meet Navy and Marine Corps requirements.

Field testing is currently underway to evaluate the recently developed Marine Corps Expeditionary Dental Shelter. This shelter represents a considerable improvement over the previously used cloth field dental facility in that it provides protection against chemical and biological agents. Another recent accomplishment with the potential for major impact on operational readiness is the development of a new enzyme that has been shown to prevent dental caries in laboratory animals. The clinical application of this new technology is expected to reduce dental emergencies that could impede Navy and Marine Corps operations.

Laboratories

Eight laboratories and three detachments are under the command of NMRDC. The following describe RDT&E activities performed by these laboratories and detachments.

Naval Aerospace Medical Research Laboratory (NAMRL), Pensacola, FL. Primarily concerned with problems relating to Navy and Marine Corps aviation. Major laboratory programs include the study of air and motion sickness in aviation personnel (Figure 1), evaluation of psychomotor skills required in aviation, development of criteria for selecting aviation personnel, investigation of aviation visual and auditory performance requirements, and the physiological and behavioral effects of nonionizing radiation.

Naval Biodynamics Laboratory (NBDL), New Orleans, LA. Established to determine human responses to various types of dynamic forces (i.e., ship motion, vibration, and acceleration impact) encountered in naval environments. Major programs include studies of the physiological effects of ship motion (Figure 2), determination of human tolerance limits to total body vibration, and determination of human dynamic response to impact acceleration (Figure 3).*

*See *U.S. Navy Medicine*, August 1981, pp 4-6.

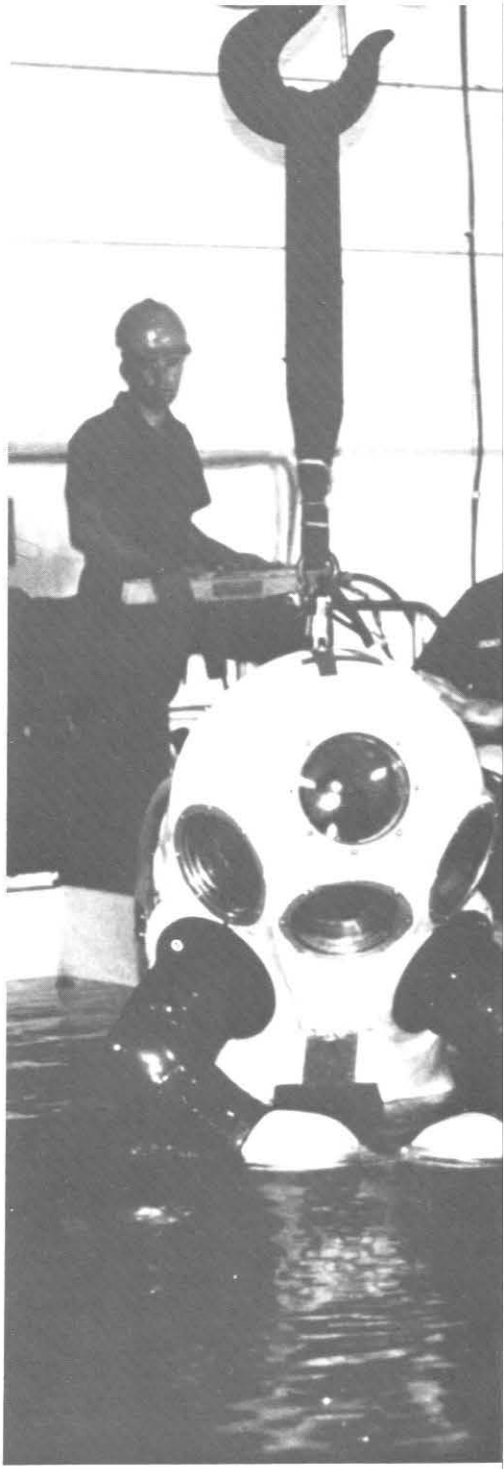
Left: Figure 3. Acceleration track used to determine medical and performance effects of impact acceleration. Below: Figure 4. Interior view of the Marine Corps Expeditionary Dental Shelter set up for patient treatment.

Naval Dental Research Institute (NDRI), Great Lakes, IL. Located on the grounds of the largest Navy recruit training facility in the world. Epidemiologic investigations provide a continuous monitoring of dental treatment needs of incoming Navy recruits. Major programs include the development of chemoprophylactic and therapeutic methods of dental disease prevention, studies of treatment methods for advanced dental disease with high prevalence in military populations, and the development and evaluation of fleet dental equipment and facilities (Figure 4).

Naval Health Research Center (NHRC), San Diego, CA. Addresses a broad range of RDT&E requirements. Specific program activities include a study of longitudinal health and injury patterns in Navy populations; investigations of factors involved in recruit attrition; determination of the effects of work schedules, sleep loss, and continuous operations on health and performance; study of relationships between physical and mental fitness and human performance (Figure 5); investigation of medical and psychological responses to prolonged stress; and development of techniques for rapid diagnosis of tropical diseases.

Naval Medical Research Institute (NMRI) Bethesda, MD. Navy's largest medical research laboratory. Programs are scientifically and technically diverse and include RDT&E in areas such as diving medicine (Figure 6), heat acclimatization, electromagnetic radiation, environmental toxicology (Figure 7), infectious diseases, combat casualty care, transplantation, and oral and maxillofacial combat injury. Specific research studies the psychophysiology of hyperbaric environments (Figure 8), development of improved methods of managing and caring for casualties in hemorrhagic or septic shock, and the development of vaccines for malaria, rickettsial diseases, and *Pseudomonas* infections.

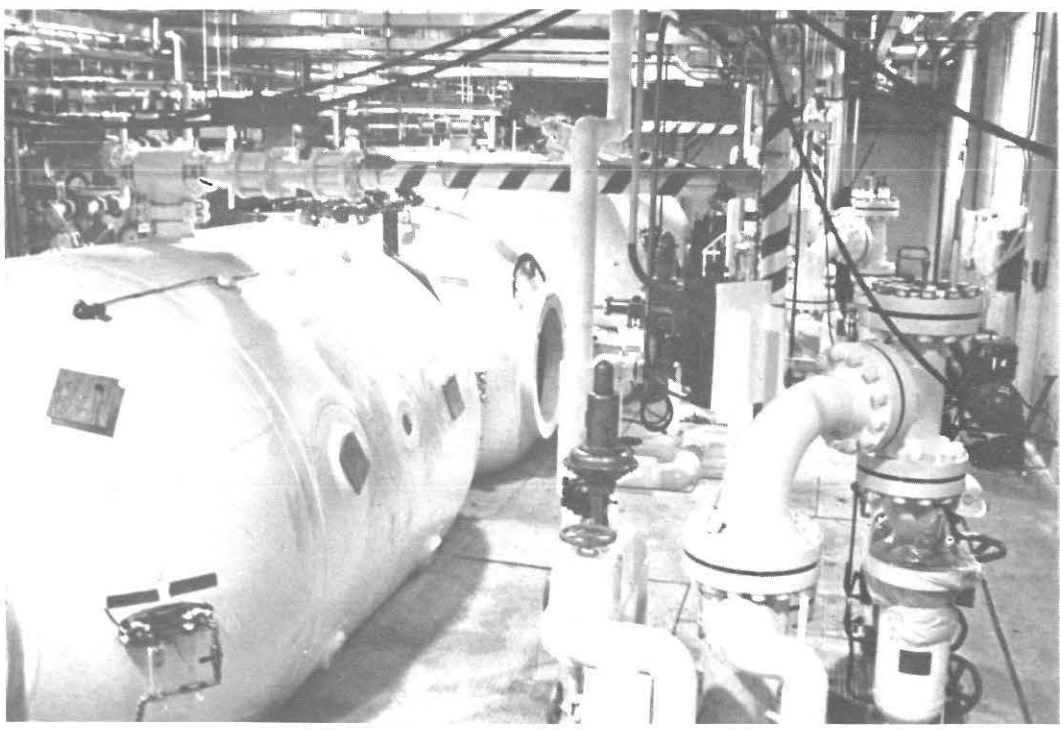
Figure 5. Physical fitness testing. Right: Figure 6. Test and evaluation of the one-atmosphere diving suit.



Naval Submarine Medical Research Laboratory (NSMRL) Groton, CT.* Dedicated primarily to medical RDT&E relating to underwater operations. The Laboratory's programs include evaluation of human response to saturation-excur-

*See *U.S. Navy Medicine*, November 1981, pp 11-16.

Figure 7. Thomas domes used for inhalation toxicology studies. Below: Figure 8. Hyperbaric chamber system, capable of simulating saturation dives to a depth of 3,000 feet, evaluates the medical effects of deep diving.



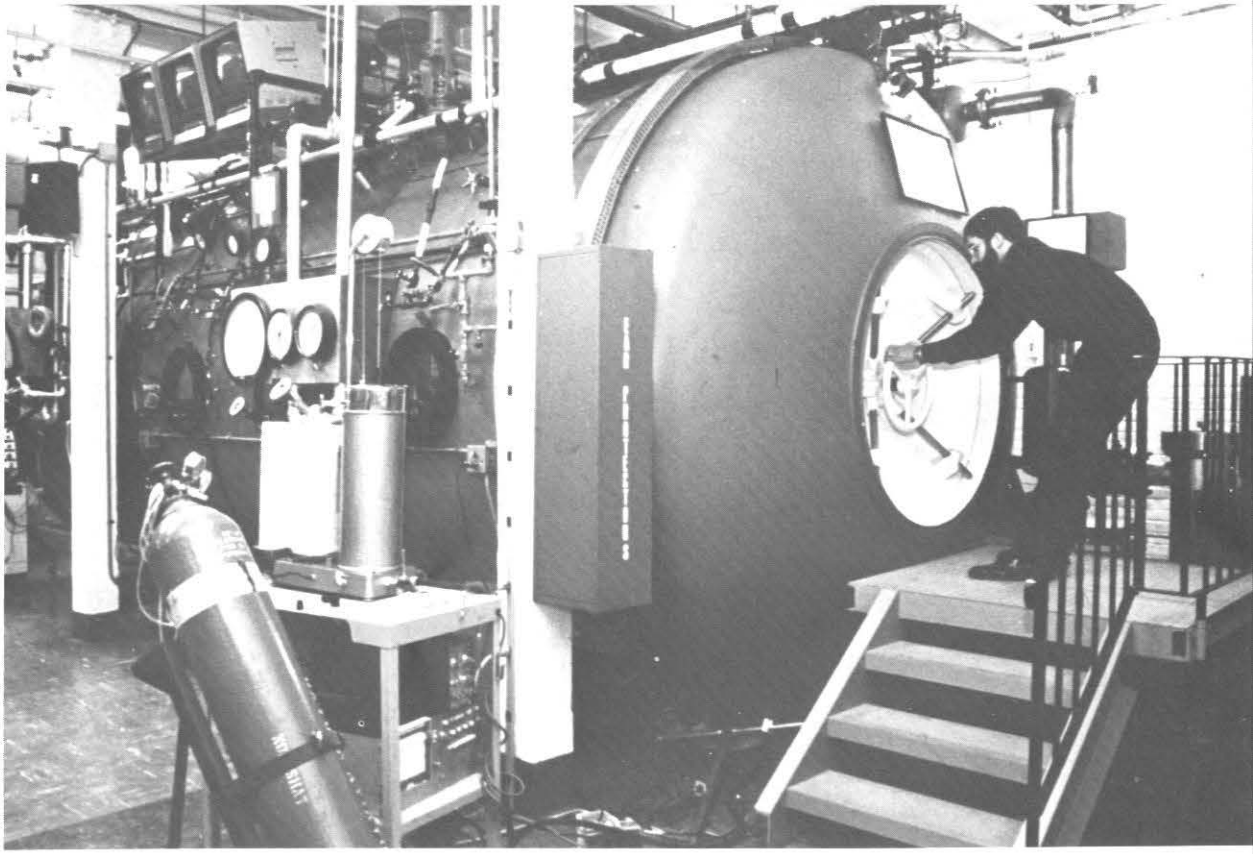


Figure 9. Hyperbaric chamber employed for saturation-excursion air dives to shallow depths.

Figure 10. Anechoic (echo-free) chamber used for studies of acoustic phenomena associated with submarine operations.

sion air dives to shallow depths (Figure 9), development and evaluation of visual and auditory tests for screening submariners and divers (Figure 10), studies of submarine crew workload, development of computer-assisted medical diagnostic procedures for use aboard submarines, and determination of performance and physiological effects of cold weather operations.

U.S. Naval Medical Research Unit No. Two (NMRU-2), Manila, Republic of the Philippines. This laboratory (including NMRU-2 Detachment, Jakarta) studies infectious and tropical diseases endemic to the geographic area in which it operates. Research activities focus on conducting biomedical surveys in selected areas of the Far East, determining prevalence and incidence of drug-resistant malaria and other infectious diseases, studying the epidemiology of arboviral diseases, and infectious disease risk prediction modeling.

U.S. Naval Medical Research Unit No. Three (NMRU-3), Cairo, Arab Republic of Egypt. The Navy's largest overseas medical laboratory. Major programs include studies of the pathophysiology, prevention, and treatment of schistosomiasis, development of methods for the diagnosis and treatment of meningitides and infectious diarrhea, conducting biomedical surveys in selected areas of Africa and the Middle East, and epidemiological investigations of arboviral and parasitic diseases.

Summary

Operating with a total annual budget of $45.7 million, Navy biomedical research and development needs are effectively orchestrated through the collective contributions of 1,237 military and civilian scientists and technicians assigned to Navy Medical Department laboratories around the world and through work performed by a wide variety of private-sector extramural contractors. Through its RDT&E programs the Naval Medical Research and Development Command solves problems associated with all aspects of clinical and operational medical to insure optimal operational readiness and maximum mission effectiveness of our Navy and Marine Corps forces. □

Pediatric Weight Watchers

LCDR Margaret A. Strapp, NC, USN

The reward I received for finishing every bite was a crack at dessert! No wonder I was an overstuffed Girl Scout being ushered to the chubby section of Sears for my outfit. But, after all, "the kids were starving in China," so finishing my plate certainly helped. Thus, from an early age, I learned that elastic could stretch only so far, and that food could satisfy each and every stress in my life—or so it seemed.

In my practice now as a pediatric nurse practitioner at Naval Medical Clinic, Port Hueneme, CA, I encounter numerous overweight children struggling through life (and their blue jeans) yet still filling their pockets with M&Ms and Oreos. This is why my Waist Watchers program was launched in 1981.

The participants range in age from 10 to 18. I screen them myself with an initial physical examination, complete blood count, and a urinalysis. There have been studies showing that low serum iron levels are much more prevalent in obese adolescents than in normal controls, so it is wise to rule out anemia. "The physical exam may reveal evidence of a congenital syndrome or of an endocrine disorder. It should be noted that children with exogenous obesity may have striae and the buffalo hump appearance of the upper back suggestive of Cushing's syndrome. However the striae of Cushing's syndrome usually are more deeply discolored and the obesity is centripetal in distribution. Of considerable diagnostic importance is the fact that both hypothyroidism and excessive glucocorticoid production causes a decreased linear growth rate, whereas children with exogenous obesity frequently are tall for their age."(*1*) Diabetics are usually screened by urinalysis. Interestingly enough, none of my patients were anemic or diabetic. All of them enjoyed eating—and eating most of the time!

At a separate appointment with the child and parent, I assess the dietary history and instruct them with a nutritional program. The diet measures protein and fats—not calories. Emphasis is placed on never skipping a meal and in conscientious planning. Basically, fruits are limited to 6, breads and grains to 5, vegetables to 2 minimal, with protein at three meals in limited portions. Beef is limited with emphasis on fish and fowl. Two glasses of skim or 2 percent milk are required daily. Occasional substitutes are allowed, modified to individual needs or desires. I try to de-emphasize the importance of foods by limiting snacking. This advice is the hardest to swallow. Having a group of fat children makes it easier for a self-conscious teen to feel part of something, perhaps for the first time in his whole life.

If a child is obese, his chances of being a fat adult are excellent. The time to attack this fat problem is when the child is young. Children are eager learners and become quite impressed with someone less threatening than their parents. Melanie, a pudgy, shy

Photos by A.A. Mitchel

LCDR Strapp checks client's weight loss.

LCDR Strapp is on the staff of Naval Medical Clinic, Port Hueneme, CA 93043.

Sit-ups are part of the work-out program.

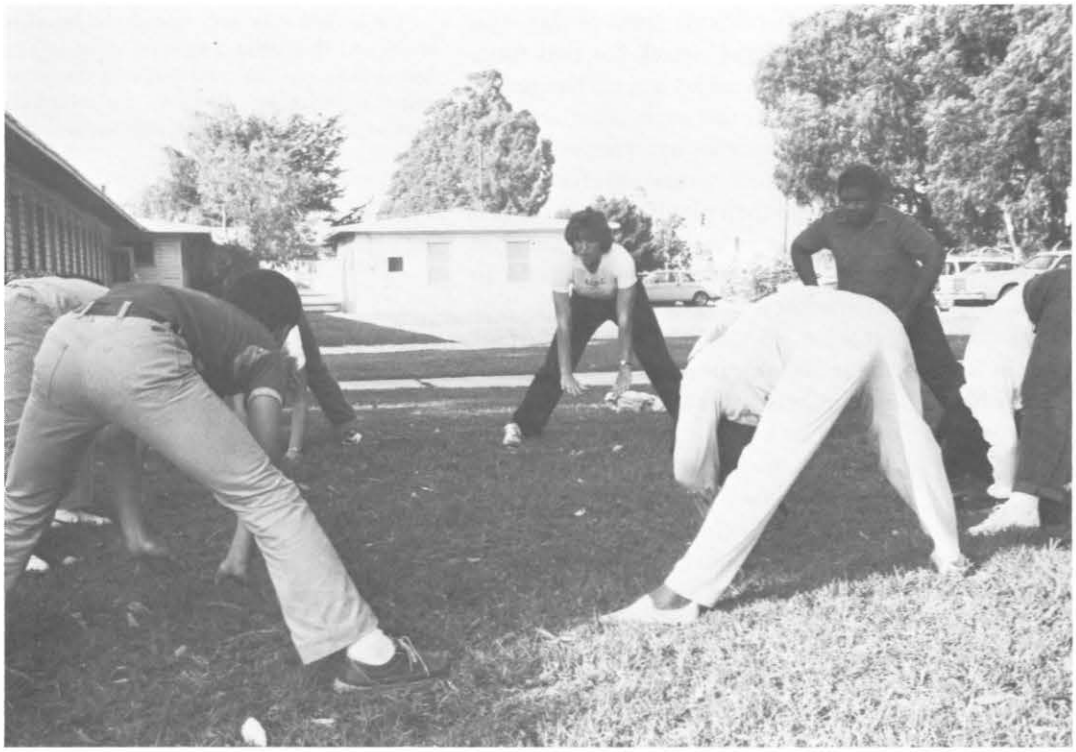
12-year-old, came to tears telling me that a couple of boys at school yelled, "Let's hide behind her; she's big enough!" Rodney's mom was concerned because every year he tears out his photo from the class picture.

Children overeat for many reasons, as do adults. They may have obese parents; may be bored, depressed, angry, stressed, or anxious. Surprisingly, they may fear being thin, attractive, and loved. Being fat can be a protection—a protection, primarily, from dealing with members of the opposite sex in a social setting. "It has been well documented that these children have a poor self-image and express feelings of inferiority and rejection.(*2*) "They encounter teasing, ridicule and are often left out of games, activities, and athletics and thus become increasing more inactive. In response, they withdraw and indulge in antisocial behavior, and school performance may deteriorate. A vicious cycle is set into motion whereby the increasing frustration and isolation results in even greater withdrawal, and as a substitute for acceptance and activity, eating is resorted to for gratification and solace."(*3*) Another serious consideration is the increased likelihood that obesity will persist into adolescence and adulthood, as suggested by the hypothesis that a period of accelerated hyperplasia of fat cells may occur between the age of 0-4 years and 7-11 years in response to excessive caloric intake."(*4*)

If a child learns why he reaches for food then he can learn to deal with the reasons and work them out without food. I try to resolve the conflicts and stresses in their lives through group rap sessions and individual encounters. The children learn to identify their need for food and channel their energies into more positive activities like exercising, school teams, extracurricular activities, and volunteer groups.

Working with the parents is a necessity so that compliance and understanding is achieved. I cannot overstress the importance of parental support. The child who has this added strength enjoys a more successful and consistent loss. Usually, the entire family looks better and food bills decrease.

Sadly, many parents are more a part of the problem than the solution. Children learn from the teething stage that food satiates a need. I once cared for a 4-year-old in the acute care clinic. He was 95 pounds, too heavy for me to lift, and very involved with kicking and screaming. His mom was about 4'11", weighing over 200 pounds. Armed with cookies, she literally fed his way onto the exam table. Already



Stretching and jogging unwinds the day.

he was involved in the complex pattern of obesity. It is never too late to intervene, but the earlier the better. If a 6-month-old baby is even 3 pounds overweight, instruct the mother and take a nutritional inventory. It can avoid future problems. A new study suggests that children develop fat cells until their early teens. If one develops an excess amount of fat cells, these then can become expanded in an obese state. Fat cells can shrink in size with weight loss, but they always have the potential to re-expand. The goal is to limit their production from the onset.

My program is open to dependent children who want to participate and who exceed their weight for height by over 20 pounds. The average participant has been between 40 to 120 pounds overweight. We meet weekly after school for an hour. Their weights are entered in their medical records and height checks are re-evaluated every 3 months for reassessment of their goal weight. Each child pays a quarter which is then awarded to the one with the most weight loss that week. Those with weight loss problems hand in weekly food planners so I can pinpoint their mistakes. Everyone usually loses between 4 ounces and 4 pounds weekly with an average of 1½ to 2 pounds. We then discuss problem areas, answer questions, and spend time on a weight-related topic, i.e., legal snacks, stresses in school and home, and suggestions for control, etc. Many times they put themselves on the right track by interacting with each other, as well as through peer pressure. Aerobic exercising then concludes the session.

Each child is reminded to examine their most difficult time of day and reserve a "legal" snack for that time. Telephone numbers are exchanged so that they can call each other for support. The parents are encouraged to let their child snack on fruit after school and then play outdoors. "Physical activity is to be encouraged, but rarely will exercise alone result in satisfactory weight reduction. For example, 30 minutes of running uses about 300 calories which would be of limited benefit in a patient who has a daily intake of 3,000 calories."(5) Supper, homework, and chores should follow with little time spent on television. If a child has a bad day and attacks a twinkie, he is told not to feel guilty but to get right back with the program. Feeling guilty just increases the stress factor.

The best part is the success rate. Even Billy, who managed to lose, then gain, and finally maintain his weight for 8 months, has dropped two sizes due to his increased height. Awards are given at 10- and 20-pound intervals. We acknowledge their success with engraved wooden plaques. When a child reaches his goal, I increase the calories allowed weekly until the child's weight remains stable. But if a child is consuming an additional 450 calories daily and starts to gain, then I drop him back to 400. They learn good sound eating habits, but will always need to be conscious of the type and amount of food they consume. These children must reweight monthly for supervision.

Treatment of the obese adolescent is a very rewarding challenge. I have seen a depressed, shy youth become secure, content, and loving. As Dorothy Law Nolte has written:

> . . . If a child lives with ridicule, he learns to condemn. If a child lives with criticism, he learns to be shy. If a child lives with shame, he learns to feel guilty. However, if a child lives with acceptance and friendship, he learns to find love in the world.

And if a child learns to love himself he's got nothing to lose.

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U.S. v. *Willie J. Smith*

AFIP and Criminal Cases

In 1982 the Department of Forensic Sciences of the Armed Forces Institute of Pathology (AFIP) became involved in several criminal cases. It became apparent that both trial and defense counsels in courts martial were unaware of the role the Department should play in reviewing certain cases. In fact, AFIP's review may be crucial in the successful prosecution, or protecting the rights of an accused.

In February the Chairman of the Department of Forensic Sciences, CDR Jerry D. Spencer, MC, forwarded a memorandum to the Judge Advocate General outlining two proposals for initiating such a review process. The following is the text of that memo.

This memorandum was stimulated by the recently concluded case of *U.S.* v. *Willie J. Smith*. The facts of this case will be described in some detail. The accused was convicted of murder in early November 1981 and sentenced to 50 years in prison at the U.S. Disciplinary Barracks, Fort Leavenworth, Kansas. He spent the next five months in prison until the convening authority in Korea granted him a new trial based on new evidence not reasonably discoverable at the time of the first trial. At his second trial he was acquitted by a directed verdict.

The accused was convicted in the first court martial solely on the basis of firearms residue. He was in a garage with an E-5 in the early morning hours in July 1981. According to the accused, they were talking and doodling on a scratch pad located on a desk between them. They were both armed with .45 cal. semi-automatic pistols which they had also placed on the desk. Again, according to the accused, the E-5 began talking "crazy" saying first, "how would you like to play Russian Roulette." After the accused declined, the E-5 then stated, "What would you do if I shot myself?" The accused said that he was doodling at the time and did not look up, but said, "you wouldn't do anything like that." He then heard the loud report of a shot and saw the E-5 pitch forward and strike the desk before falling to the floor. The accused then ran out of the garage to get assistance.

Swabs for the presence of firearms residue (antimony and bismuth) were obtained from the hands of both the accused and the victim. According to the firearms expert who testified at the first court martial, the levels of residue were significant on the hands of the accused, but negative on the hands of the victim. This evidence implied that the accused had fired the gun. The military pathologist who performed the autopsy also testified in the first court martial. His testimony was noncommittal, stating that the gunshot wound was consistent with a suicide, but also consistent with a homicide. The members of the court martial found that guilt was established beyond a reasonable doubt.

In late November 1981 this department was asked to review the case by the Crimes Division, Headquarters U.S. Army Criminal Investigation Command (C.I.D.). That division has the responsibility of reviewing all C.I.D. reports involving crimes. They had just received the final report of that case and had some doubts regarding the correctness of the conviction. Following our review we concurred, finding that the gunshot wound was self-inflicted and that the manner of death was probably suicide. In our opinion, the firearms residue testing was not dispositive because the accused had fired a machine gun (he was a machine gun crew chief) within 48 hours, and had taken a machine gun apart within 24 hours of the incident. He thus had good reason to have firearms residue on his hands. Also, it is not uncommon for firearms residue to be undetectable on the hands of an individual who fires a semiautomatic weapon. Based on our review and consultation with firearm's experts from other federal agencies, the accused was granted a new trial by the convening authority.

The accused was acquitted at the second trial when the trial judge found that improper procedures were followed in obtaining the firearms residue evidence in July 1981. He refused to admit that evidence and granted a motion for a finding of not guilty.

Notwithstanding the firearms residue evidence, there was ample evidence that the gunshot wound was self-inflicted. The wound of the head was at contact range. Homicidal contact gunshot wounds are rare. They do occur, but this department has never reviewed a case involving a homicidal contact gunshot wound. Furthermore, the course of the bullet was angled upward, typical of a self-inflicted gunshot wound. In order for the accused to have fired the gun at the victim (who was seated at the time of the shot), the accused would have had to have held the gun in contact with the victim's right temple while he squatted on the right side of the chair. That would be the only way the course of the bullet would be upward in the case of a seated victim. For the second trial the defense obtained three experts (forensic pathologists) to testify that the gunshot wound was self-inflicted. Two of the experts, Dr. Marvin Aronson, Chief Medical Examiner of the City of Philadelphia, and Dr. Charles Petty, Chief Medical Examiner for Dallas County, Texas are recognized nationally as experts in their field. In my opinion, the defense reasonably believed before the second trial that reasonable doubt existed.

In this case, an ancillary criminal review process existed. This C.I.D. review process was responsible for spotting the error and bringing it to the attention of the Office of the Chief, U.S. Army Trial Defense Service. Once alerted to the problem, the accused's defense counsel petitioned the convening authority for a new trial. A rehearing was ultimately granted. The mistaken conviction in the first trial was properly corrected. However, in my opinion, the first trial should not have occurred, and the accused should not have undergone the agony of two trials and having to spend five months in prison. The mistake occurred in this case because the case was not timely reviewed by this department.

For some time military pathologists have been required to forward all autopsy materials involving sudden and unexpected (natural deaths), violent deaths (homicides, suicides, accidents), and mysterious or unexplained deaths to this department for review. The medical departments of the three armed services have instructions that direct the pathologist to forward the case for review. For example, BUMEDINST 6510.2E requires forensic autopsies to be forwarded to the Armed Forces Institute of Pathology as soon as the case is completed.

The need for this review arose because of the small number of forensic pathologists in the armed services. Indeed, the example of Willie J. Smith is evidence of this shortage; i.e., when the AFIP did have opportunity to express its opinion, the manner of death became clear to all (or at least should have been clear to all). The majority of autopsies on persons dying of unnatural causes must be performed by military pathologists having little or no training and experience in forensic pathology. This situation in the past has resulted in instances in which pathologists have not recognized important forensic findings, have not adequately documented changes, or have failed to collect properly valuable evidence. The instructions requiring review were an effort to avoid these problems.

Unfortunately, these instructions have not provided for a timely review in the majority of cases. In the past year, forensic pathologists in this department have testified in 18 judicial proceedings (Article 32 hearings or courts martial). In only one of these cases did the department review the case because of the usual review procedure. In that case, the pathologist forwarded the case on a rush basis because he was uncertain about the manner of death. The majority of the other cases were reviewed because an investigator (C.I.D., O.S.I. or N.I.S.) called this department for assistance. This department then called the pathologist to request that the case be forwarded for review.

Most civilian jurisdictions now have a forensic pathologist in medical examiner or coroner's offices that perform the forensic autopsies and render qualified opinions regarding the cause and manner of death. Civilian prosecutors and defense attorneys have available a copy of the forensic autopsy report, and can consult with the forensic pathologist before trial. Without a review by the Department of Forensic Sciences, similar information is not presently available to trial and defense counsel in military courts martial.

The problem presented by the case of *U.S.* v. *Willie J. Smith* is how to assure a timely review of forensic cases so that sometimes critical information will be available to military counsel. The Smith case and other cases have indicated that the review provided for by the medical department instructions is ineffective in providing a timely review. In the Smith case, for example, the final autopsy report was not completed until after the trial. The majority of cases forwarded for review by this department are, in fact, received sometime after a court martial would have been completed.

There is no question that military pathologists have not been forwarding forensic cases for timely review. However, in some cases the pathologist cannot be entirely faulted. *He may not be aware until the last minute when he is advised by military counsel that the case is going to court.* He is really outside the judicial process, and only becomes involved when requested by military counsel. There is a real need for coordination between the military counsel and the pathologist performing the autopsy.

In our opinion, military counsel should have a more direct role in assuring that a forensic case is timely reviewed. They are aware that criminal charges will be preferred and will have some idea of scheduling for Article 32 hearings and courts martial. They could insure that the military pathologist forwards the case for a timely review.

We have two proposals that we feel could benefit the military justice system by a timely review of forensic cases. One of these proposals is informational in character. We feel that trial and defense counsel should be apprised that

the Department of Forensic Sciences is available for consultation and assistance. This information could be disseminated in a newsletter to military attorneys.

Our second proposal would require more affirmative action. We propose that the convening authority have the responsibility of insuring that cases involving manslaughter or murder charges be reviewed prior to trial. Again, a review by a qualified forensic pathologist will aid both trial counsel and defense counsel and will be in the interest of promoting justice. Since the pathologist performing the autopsy is really not part of the judicial process, we feel this policy is the only method that would insure a review. This requirement to insure a review would necessitate a JAG instruction, or perhaps an addition to the *Manual for Courts Martial.*

We are aware of the time constraints placed on the convening authority in cases where there is a pre-trial confinement. A review by this department would not impose additional delays. We can review a case and report our opinion within 24-48 hours of receipt. Our problem for a review is learning about the case and receiving the autopsy materials in a timely fashion. Under this proposal, the Convening Authority would direct the pathologist to forward the case for review, identifying it as a pending judicial case. In some cases, an autovon call by the pathologist to this department may be sufficient. If the autopsy materials are forwarded, our reply would be immediate by message or autovon call. The immediate response would be followed by a formal consultative report.

I can be reached at (202) 576-3287 or Autovon 291-3287 if you have questions regarding the present review problem and the proposals outlined in this memorandum. □

Applications Being Accepted

USUHS School of Medicine

A career in medicine does not have to start with unreasonable concern about the high costs of medical education. For individuals interested in serving their country, there is an alternative. This alternative is the unique medical program offered at the Uniformed Services University of the Health Sciences (USUHS). The University was created by Congress in 1972 as part of the Department of Defense and continues to be a source of career-minded medical officers for the Army, Navy, and Air Force. Medical students are commissioned as ensigns or second lieutenants and receive the pay and allowances of their rank during their matriculation.

The USUHS School of Medicine is a fully accredited 4-year medical school which has graduated four classes of physicians/medical officers and currently has an enrollment of approximately 600 students. Qualified college graduates who enter the program receive a tuition-free medical education in return for a commitment to serve 7 years in the medical departments of the uniformed services of the United States. A graduate program leading to a Ph.D. degree in one of the basic sciences is also available to both military and civilian students.

The University has a modern campus in Bethesda, MD, and utilizes four of the Washington metropolitan area's major military medical facilities for its prime clinical teaching centers. Students are provided the same curriculum available at any of the civilian medical schools in the United States. In addition to this basic medical training, students also receive training in military medicine, applied military physiology, and tropical medicine to prepare them for the medical practice they will encounter upon entering active duty with either the Army, Navy, or Air Force. The intent of the USUHS program is to train physicians capable of practicing anywhere in the world.

Individuals who are committed to a career in medicine and want to combine it with a military career should consider the USUHS School of Medicine. The eligibility requirements include applicants be U.S. citizens, have a bachelor's degree with a strong background in the sciences, take the New Medical College Admissions Test, and apply using the standard application provided by the American Medical College Application Service (AMCAS).

The USUHS School of Medicine is currently accepting applications for 156 openings in the class which will start in August 1984. Potential applicants interested in learning more about the program should review a copy of the Bulletin of the School of Medicine. To obtain a copy write to Public Affairs Office, Room A-1045 (ATTN: aamc), Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, MD 20814.

Glossodynia:
Diagnosis and Treatment

CDR G.M. Taybos, DC, USN CDR G.T. Terezhalmy, DC, USN

Glossodynia is a burning tongue syndrome characterized by pain, itching, and stinging of the tongue, sometimes in association with similar symptoms of the oral mucous membranes. The rich blood supply, numerous sensory nerve endings, and the extreme mobility of the tongue all make the patient aware of the smallest change in the oral epithelium.(*1*) In fact, clinical examination does not always reveal appreciable modification of the tissue.

Diagnosis

Glossodynia is often a symptom of a complex systemic disease rather than a pathologic entity. The diagnostician must look for deficiency states such as iron deficiency anemia, pellagra, achlorhydria, and pernicious anemia; metabolic problems like diabetes mellitus; hypersensitivity reactions; psychogenic or idiopathic factors; and local conditions such as benign migratory glossitis, candidiasis, or lichen planus, xerostomia, and oral cancer. (*2*)

Deficiency states may produce signs and symptoms involving the tongue. In iron deficiency anemia the patient's tongue may have a variety of symptoms, including the loss of filiform papillae.(*3*) Early manifestations are noted on the lateral margins and tip of the tongue. A deficiency of folic acid and vitamin B_{12} may cause generalized atrophy of the lingual papillae. The patient usually presents with a painful, beefy-red tongue, in many instances accompanied by angular cheilitis.(*1,4,5*)

Diabetes mellitus is often associated with glossodynia concomitant with xerostomia and candidiasis.(*1,6*) Diabetic neuropathies may also be manifested in the head and neck and may contribute to the symptoms.

Neurotic glossodynia has been described in typical postmenopausal women and is often accompanied by cancerphobia.(*7,8*) A painful tongue may be the first indication of depression,(*9-12*) and glossodynia, the complaint of a metallic taste, and pruritus (often of the scalp) may be associated with stress and anxiety.

Benign migratory glossitis is a commonly recurring condition in which there is loss of filiform papillae in an irregular pattern. This condition is usually asymptomatic, although patients may present with glossodynia due to mild irritation from spicy foods.

Factors predisposing to *candidiasis* include diabetes mellitus, nutritional deficiencies, cytotoxic drugs, radiotherapy, corticosteroids, xerostomia, and pregnancy (with secondary infection to the infant). Poor oral hygiene, especially in a patient with dental prostheses, is a significant predisposing factor. Clinical manifestations include acute pseudomembranous, chronic hyperplastic, or chronic atrophic forms of candidiasis and may contribute significantly to the symptoms of glossodynia.

Oral lichen planus is usually associated with asymptomatic, hypertrophic Wickham's striae. However, erosive oral lichen planus with painful, eroded ulcerations up to several centimeters in size must be considered in the differential diagnosis of the burning tongue syndrome.

Glossodynia may also be the initial symptom of Sjögren's disease, primarily as a complication of xerostomia.

Treatment

Definitive diagnosis and management of the underlying system responsible for glossodynia is within the purview of the physician. The dentist's

Dr. Taybos is on the staff of the Oral Diagnosis Department, National Naval Dental Center, Bethesda, MD 20814. Dr. Terezhalmy is Chairman of the department.

primary responsibility is to provide supportive care directed at signs and symptoms in the oral cavity.

The pain, itching, and stinging are appropriately treated with topical anesthetic agents.

Rx
Diphenhydramine hydrochloride, 12.5 mg/5 ml
Disp: 4 oz bottle
Sig: Swish with one tablespoonful before each meal.

Rx
Lidocaine hydrochloride viscous, 2 percent
Disp: 100 (450) ml bottle
Sig: Swish with one tablespoonful before each meal.

Candidiasis, whether due to xerostomia or to decreased immunocompetency, may be best managed with nystatin(*13*) or, if the candidiasis is refractory, with ketoconazole.

Rx
Nystatin vaginal tablets, 100,000 U
Disp: 30 tablets
Sig: Use as lozenge, one tablet three times per day.

Rx
Nystatin oral suspension, 100,000 U/ml
Disp: 60 ml bottle
Sig: Rinse with one teaspoonful four times a day and/or soak prostheses overnight.

Rx
Ketoconazole, 200 mg
Disp: 15 (30) tablets
Sig: One tablet per day orally.

Xerostomia, regardless of the etiology, is treated symptomatically with artificial saliva. Because qualitative and quantitative changes in the saliva contribute significantly to the incidence of caries, a fluoride regimen is added to the therapeutic approach.

Rx
Xero-Lube saliva substitute
Disp: 6 oz bottle
Sig: Rinse as often as needed to moisten and lubricate the oral cavity.

Rx
Stannous fluoride gel, 0.4 percent
Disp: 2.3 (6) oz bottle
Sig: Apply to teeth daily, 5-10 drops in a moist carrier for 5 minutes to reduce the increased caries rate associated with xerostomia.

In *oral lichen planus,* particularly the erosive type, there may be painful exacerbations followed by remissions. When the condition is symptomatic, therapy with a topical steroid ointment or rinses may be indicated.(*14*)

Rx
Triamcinolone acetonide ointment, 0.1 percent
Disp: 5 gm tube
Sig: Apply to oral lesions after each meal and at bedtime.

Rx
Dexamethasone, 0.5 mg/5 ml
Disp: 100 (237) ml bottle
Sig: Rinse with one teaspoonful four times a day for 2 minutes. DO NOT SWALLOW!

Glossodynia is a symptom and not a disease entity. The dental practitioner should provide palliative and supportive care and initiate appropriate evaluation of the patient's physical status. Once the precipitating systemic disease is adequately managed, the oral manifestations will resolve.

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Cholera in Truk:
A Major Epidemic

LCDR Jack W. Smith, MC, USN
LCDR Gordon H. Poppell, MSC, USN
CAPT Richard H. Rahe, MC, USN

Truk State, one of four states in the recently organized Federated States of Micronesia (FSM), is located in the Eastern Caroline Islands, Northern Pacific, 152° longitude and 8° north latitude. Truk State consists of a central group of atoll islands within a large lagoon as well as several outlying islands. The population is approximately 33,000; more than one-third live on Moen, the seat of local government and one of the islands within the lagoon.

This region is known principally for its role during World War II when it served as both a communications center and a harbor for the Japanese fleet. On 17 Feb 1944 a 2-day massive bombing raid was carried out by U.S. Navy aviators on the Japanese fleet. Although Japanese combatant vessels escaped due to forewarning of the attack, "Project Hailstone" managed to sink over 200,000 tons of support and supply ships in the lagoon.(*1*) Forty years later these ships, lying in from 10 feet to over 250 feet of water, have accumulated an impressive assortment of both hard and soft corals which attract sport divers from around the world.

The formation of Truk Lagoon began with an upthrusting of volcanic rock into a large, multiple-peaked island. The growth of coral then began along the island's circumference. The island later partially settled back into the Pacific Ocean and the original rim of coral became the reef. Peaks of the original island remain unsubmerged today as the islands of the lagoon. Although this lagoon affords the inhabitants a year-round safe harbor from high seas, it also imposes an environmental health hazard. The restricted flow of sea water in and out of the lagoon creates a partial stagnation of ocean life. If fish and shellfish are infected with micro-organisms such as *Vibrio cholera,* they become a disease reservoir of human significance.

Water catchment, storage, and delivery, along with sewage disposal, are still at primitive levels of development in most of Truk State. For generations the natives have constructed their toilets over the edge of the lagoon. This structure, called a binjo, is far easier to build than digging a pit latrine into the volcanic earth. Latrines can also be found built over fresh water streams or near wells which lead to fecal contamination of drinking water.

Cholera disease is endemic in regions which border Micronesia, such as Indonesia and the Philippines. Why did Truk only last year develop its first major cholera epidemic? The answer may be the sewage disposal practices of the inter-island freighters. These ships, which carry supplies between Micronesia and regions with endemic cholera have reportedly dumped raw sewage into Truk Lagoon for many years. From this source the fish and shellfish may have become widely infected. Therefore, after years of bioconcentration in the marine life, sufficient cholera microorganisms

Dr. Smith is a family practice physician on the staff of Naval Hospital Guam. LCDR Poppell is Chief, Environmental/Occupational Health Service at the same facility. Dr. Rahe is Commanding Officer of the Naval Hospital.

Left: An overwater toilet (binjo) in the lagoon. Below: Trukese women harvesting small fish and shellfish.

Below: A water catchment system in Truk: Rainwater from roof drains into gutter and then into a rain barrel. Excess water is stored in a bathtub. Note animal pen perched over a fresh water stream.

LCDR Smith examines an emaciated boy with a history of severe diarrhea.

may have finally become present to ignite an epidemic.

Guam's Response to the Outbreak

Reports of severe diarrheal disease on one of the outlying western islands in Truk State reached Guam in early August 1982. An environmental health officer from Saipan visited Truk and confirmed the clinical impression of cholera as the cause. Stool samples were collected from several patients and sent to Hawaii and Guam for culture. Most disturbing were four deaths, three of whom were children. RADM Bruce DeMars, Commander U.S. Naval Forces Marianas (COMNAVMARIANAS), requested medical personnel to assess the situation.

CAPT Richard H. Rahe, MC, Commanding Officer of Naval Hospital Guam, chose LCDR Jack W. Smith, MC, a family practice physician with experience in tropical medicine and LCDR Gordon H. Poppell, MSC, Chief of the Occupational and Environmental Health Branch to travel within the next 24 hours to Truk State. He would join them following a personal visit with health officials in Ponape, the capital of FSM. The two officers would pay particular attention to the health status of DOD personnel on the island, specifically the naval officer in charge of construction and the U.S. Air Force Civic Action Team. They were also directed to assess how best to aid the Governor of Truk State in his medical and public health efforts in combating the epidemic. The team took a limited amount of medical supplies including I.V. fluids, a dozen cholera cots, and various medications.

On 8 Sept 1982 LCDR Smith and LCDR Poppell arrived on Moen aboard a Military Airlift Command aircraft. They found all 14 DOD personnel to be in good health and provided cholera vaccine boosters and information on the prevention of cholera.* Next, the team visited Truk General Hospital to assess the handling of acute cases and provide health personnel with supplemental emergency medical supplies. The officers were then escorted to the office of Governor Earhart Aten for a formal briefing. The Governor had already begun a register for all suspected cholera cases. He later formed a special committee to investigate fully the epidemiology of the outbreak. LCDR Poppell was assigned to this committee. Stool specimens obtained from recent cases and sent to Honolulu for laboratory analyses had come back positive for *Vibrio cholerae,* biotype El Tor, serotype Inaba. Thus, it was clear that cholera was, in fact, present in Truk and it remained to be seen what the ultimate dimensions of the epidemic would be. LCDR Smith was assigned to a second committee concerned with therapeutic and preventive aspects of the disease.

One of the difficulties encountered in forming a register for persons with the disease was the way in which the Trukese obtain their names. Very few, for example, use a family name. The people are known among themselves by first names and their village and island of origin (e.g., John of Penia, Moen). If pressed for a family name, they will give the name of the head of their household (the eldest male or their grandfather). So John of Penia might also be called John Joseph or by one of several nicknames which are very common in this culture. This frequently caused confusion in gathering register data and some patients may have been recorded more than once.

One of the first areas of medical concern was to institute a cholera ward at Truk General Hospital. LCDR Smith worked with the medical staff isolating all inpatients with suspected cholera to a single ward where they could be treated in a stand-

*Cholera vaccine is low in efficacy and has no value in the direct control of an epidemic situation since it elicits an active immune response which requires several weeks to produce a protective antibody titer.

ardized fashion by the nursing staff. The patients were under the supervision of Dr. Jerome Lundstrom, a Public Health Service physician. Stool cultures were obtained on all patients, I.V. fluids and/or oral rehydration salts were routinely given, and treatment with tetrachycline, when warranted, was administered. The diagnosis of cholera in the local laboratory was impossible at the beginning. Although the laboratory had supplies of Thiosulfate Citrate Bile Saltsucrose agar media, there was no Cholera 0-1 Anti-sera which is necessary to differentiate cholera from other *Vibrio* species. These supplies became available with the arrival of the epidemiologists from the World Health Organization and the Centers for Disease Control in Atlanta, GA.(*2*)

Case Findings

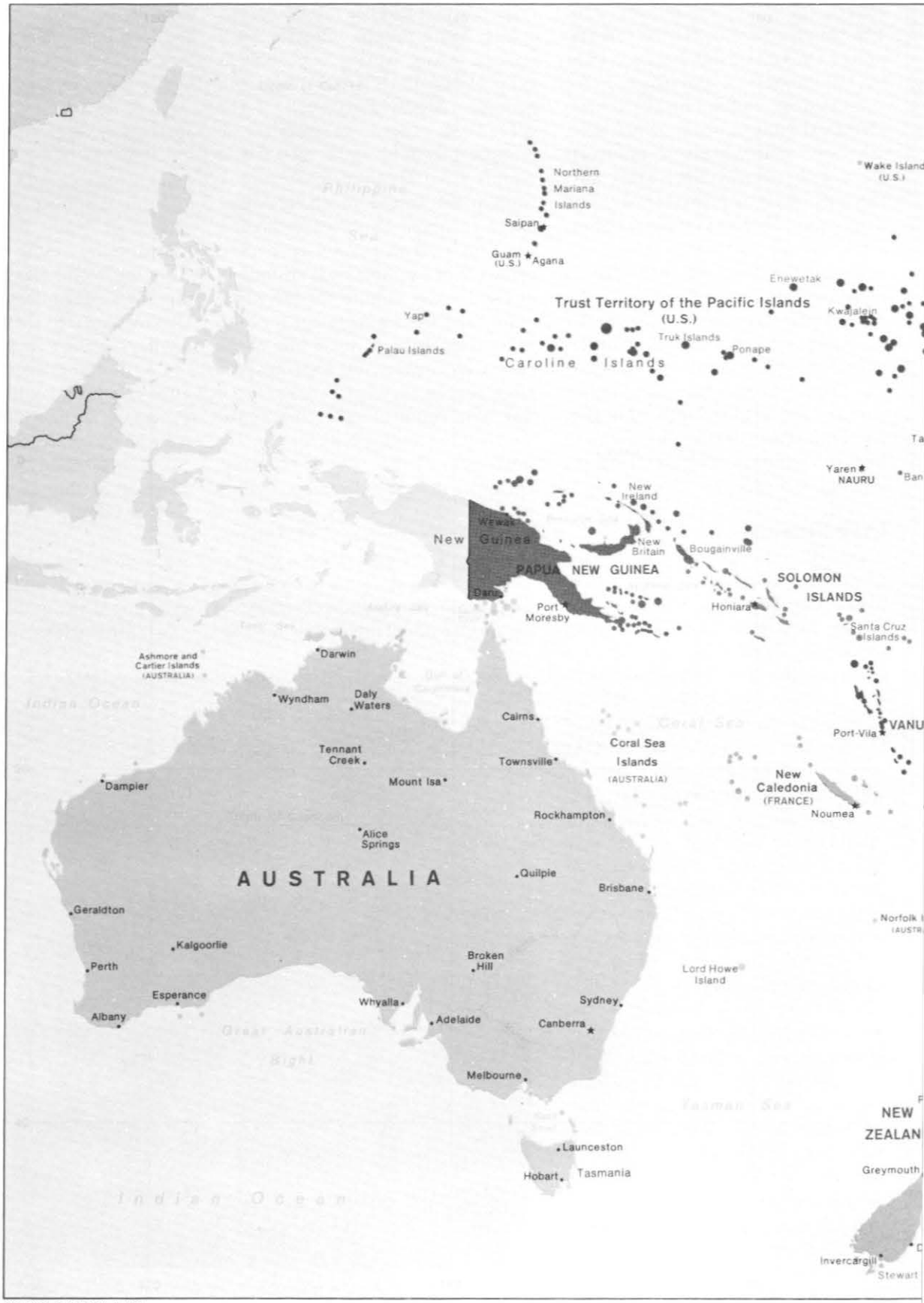
On 10 Sept LCDR Smith and LCDR Poppell began making field trips to neighboring islands in the lagoon to demonstrate case finding techniques. These trips were made in a small launch which, when loaded with four persons plus medical supplies, rode low enough in the water to result in frequent salt water baths for its occupants. The team got a taste of what Truk fishermen experience daily when traveling between islands in the often choppy waters of the lagoon in low freeboard boats. However, this launch was later used for the medical evacuation of seriously ill patients and performed admirably. Within the next 3 days four islands besides Moen were visited, some islands twice. In each village all persons with severe diarrhea were examined. Severely afflicted persons were seen in their homes. Whenever possible stool samples or rectal swabs were obtained for culture. Public health lectures were given by a native health official in which he instructed the inhabitants in the boiling or chlorination of fresh water (clorox was left in each village when possible). He also emphasized handwashing before food preparation and advised against eating raw lagoon fish and shellfish.

Islands that had been free from the disease later became infected with cholera. It was virtually impossible to keep individuals from traveling between islands, and much of the spread of disease seemed to be brought about by these inter-island visitors. Contrary to current textbook wisdom the spread of cholera from island to island appeared to involve food-borne and person-to-person spread. For example, it is customary in the Trukese culture for the whole family and friends to gather for a funeral celebration at the home of the deceased. Sharing of food plays a large role in these gatherings and it was in the course of one of these funerals that the initial outbreak in the western outlying island occurred. Once the disease started the island's poor sanitary practices allowed for fecal contamination of food. This was particularly the case when a child in the family was suffering from the disease. Mothers or grandmothers caring for a child would alternately hold the child in blankets wet with diarrhea and then assist with the preparation of meals or attend to other small children within the household.

On 12 Sept help from other federal agencies arrived. An epidemiologist, Dr. Jeff Harris, was sent from the Centers for Disease Control, Atlanta, and immediately joined the epidemiologic team. He began a case-control study on the island of Moen. Also, the World Health Organization sent an epidemiologist, Dr. Tadeusz Olakowski, from their regional headquarters in Suva, Fiji.

CAPT Rahe arrived on 16 Sept after meeting with health officials in Ponape. The next day he joined the crew on the small launch for a visit to two lagoon islands with an increasing caseload of cholera victims. He later reviewed information gathered by the epidemiology team and it was clear a major epidemic was indeed in progress in Truk State. Until then many officials hoped the outbreak would be of small proportions and limited to one

A child is evacuated by launch from a lagoon island to Truk State Hospital.



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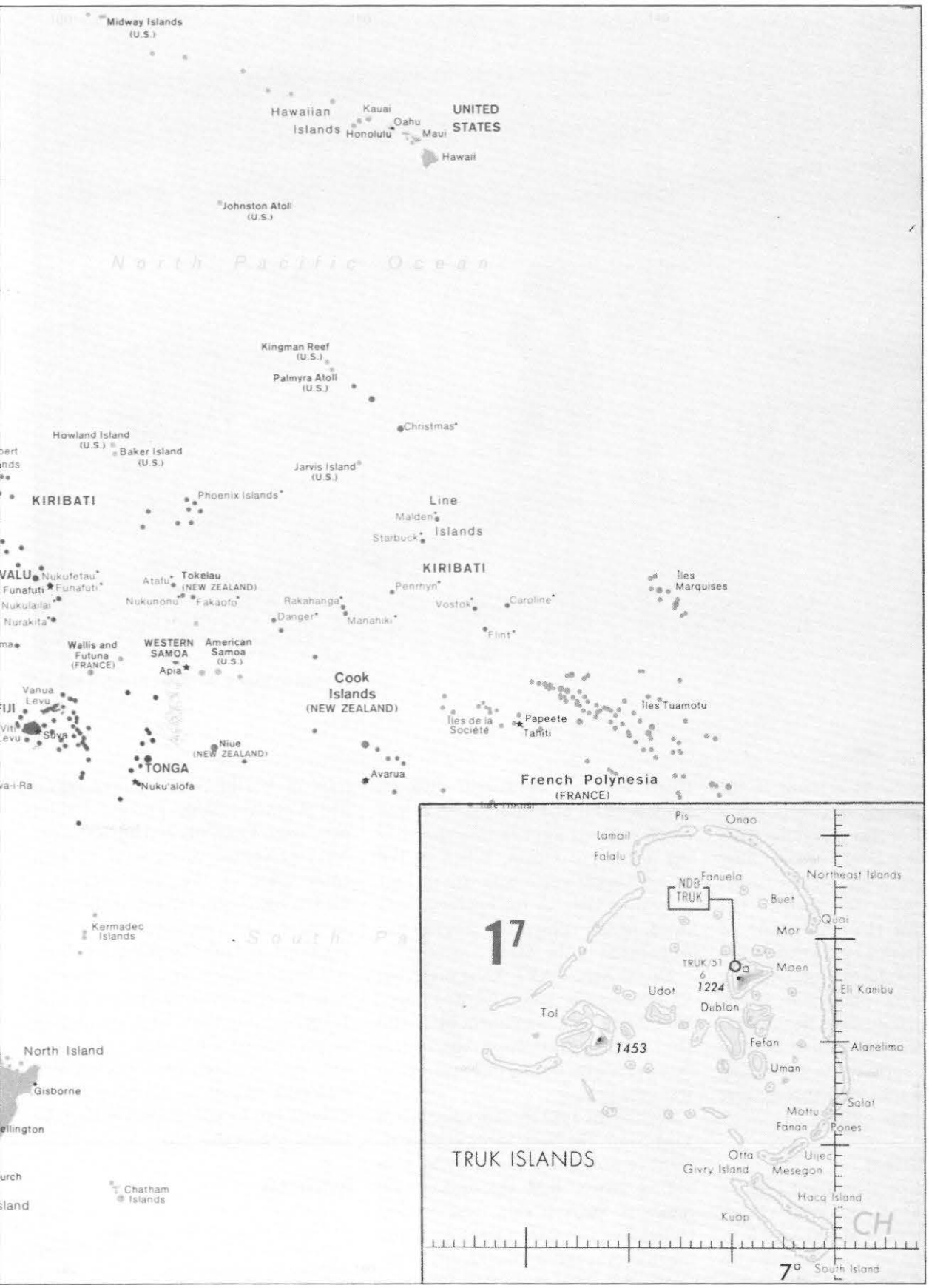
Midway Islands (U.S.)
Hawaiian Islands
Kauai
Oahu
Honolulu
Maui
UNITED STATES
Hawaii
Johnston Atoll (U.S.)
North Pacific Ocean
Kingman Reef (U.S.)
Palmyra Atoll (U.S.)
Christmas
Howland Island (U.S.)
Baker Island (U.S.)
Jarvis Island (U.S.)
KIRIBATI
Phoenix Islands
Line Islands
Malden
Starbuck
KIRIBATI
Penrhyn
Vostok
Caroline
Flint
Îles Marquises
Rakahanga
Manahiki
Danger
Nukunonu
Fakaofo
Atafu
Tokelau (NEW ZEALAND)
Nukufetau
Funafuti
Nukulailai
Nurakita
Wallis and Futuna (FRANCE)
WESTERN SAMOA
American Samoa (U.S.)
Apia
Cook Islands (NEW ZEALAND)
Vanua Levu
Suva
Niue (NEW ZEALAND)
TONGA
Nuku'alofa
Avarua
Îles de la Société
Papeete
Tahiti
Îles Tuamotu
French Polynesia (FRANCE)
Kermadec Islands
North Island
Gisborne
Chatham Islands
Pis
Onao
Lamoil
Falalu
NDB
TRUK
Fanuela
Northeast Islands
Buet
Mor
Moen
Eli Kanibu
Udot
Dublon
Tol
1453
Fefan
Alanelimo
Uman
Salat
Mottu
Fanan
Pones
Otta
Givry Island
Uliec
Mesegon
Hoca Island
Kuop
TRUK ISLANDS
South Island

A woman uses a hand net to catch lagoon fish.

or two locations. As a result of the Navy team's case finding efforts, it was apparent cholera was spreading from Moen to other lagoon islands. Outer island spread, or even spread to other FSM states, was then feared. The Governor and the Governor of Ponape supported a restriction of visitors from Truk to this neighboring FSM State. Our prediction at the time, which turned out to be substantially correct, was that even though the incidence rate appeared to be leveling off, it would be months before the rate would fall to near zero.

Return to Guam

The Navy medical team left Truk on 20 Sept to return to Guam for a briefing with COMNAVMARIANAS as well as to hold a press conference with the local newspaper and television stations. The team relayed their observations on the epidemic and its management, and in doing so helped to alleviate fears concerning spread of the disease to Guam. When LCDR Poppell made a followup visit to Truk 2 months later as the epidemic subsided, he saw substantial progress had been made in the islands' sanitation.

On 30 Sept CAPT Rahe presented LCDR Smith and LCDR Poppell with the Navy Achievement Medal for their exemplary efforts in representing Navy medicine during this major medical emergency.

During the 1982 cholera epidemic in Truk State, the Navy Medical Department responded to the crisis by providing advice and assistance with inpatient hospital care, case finding techniques, outpatient treatment, and medical evacuation of critically ill patients. All these important functions were well established prior to the arrival of World Health Organization and Communicable Disease Center personnel. Thus, the immediacy of the Navy's response, along with the high competence of the team members, made a significant impact on the management of this epidemic. Long-term solutions to health problems in Truk will require extensive sewer construction, modern fresh water storage and delivery equipment, and continuing public health education. All these solutions are high priorities for this emerging nation as it enters into a Compact of Free Association with the United States this year.

References

1. Costello J: *The Pacific War*. New York, Rawson, Wade Publishers Inc, 1981.

2. Olakowski T, Rao NU, Kim SY: *Cholera Epidemic in Federated States of Micronesia Truk/Ponape*. World Health Organization Report, Suva, Fiji, 1983. □

Hospital Corpsmen/Dental Technicians Update

• **Contingency Role for Dental Technicians.** The following contingency and occupational policy statements were appoved by VADM J. William Cox, MC, Ret., past Surgeon General, on 8 June 1983.

"During combat or mass casualty/emergency evolutions at sea or ashore, dental technicians shall, when directed, integrate with medical personnel and perform paramedical assignments. This assistance shall include, but not be limited to, aid in the care, treatment, and evacuation of mass casualties in combat or disaster. Emergency care/treatment to include artificial respiration, treatment of open chest wounds, treatment of shock, control of hemmorrhage, bandaging and splinting, cleansing and treatment of wounds, maintenance of patient airway, and the preparation of casualties for movement. Dental technicians will be under the direct supervision of the cognizant Navy Medical Corps officer(s), if present."

The occupational policy statement will be implemented by a change to the DT Occupational Classification/Identification Statement, Section I, NAVPERS 18068D.

• **References for Hospital Corpsman (HM) and Dental Technician (DT) Training.**

BUMED Instruction 1050.10E

Catalog of Navy Training Courses (CANTRAC) NAVEDTRA 10500

Enlisted Transfer Manual (TRANSMAN) NAVPERS 15909C (Chapters 2 and 7)

Manual of the Medical Department (HM's Chapter 9 and DT's Chapter 6)

• **Requesting Technical and Specialty Training.** All Medical Department enlisted personnel who want technical and specialty training should apply in accordance with BUMEDINST 1510.10E and the *Catalog of Navy Training Courses* (NAVEDTRA 10500). Requests must be submitted on the Enlisted Personnel Action Request (NAVPERS 1306/7) with the required enclosures and forwarded to the Commander, Naval Military Personnel Command (NMPC-407C).

Timely submissions are extremely important. Requests should be submitted 8 to 10 months before PRD or EAOS. *Or* have a minimum of 12 months on board present duty assignment prior to transfer.

Overseas tours *cannot* normally be terminated/broken for school assignments.

Do not submit requests for training after receipt of PCS orders.

• **Nuclear Submarine Medicine Technicians (HM-8402.).** With a large number of these NEC holders having been selected for the Physician Assistant's Program and the Medical Service Corps Inservice Procurement Program, new technicians are urgently needed. Additionally, the nuclear submarine medicine technician community experienced a number of personnel being selected for senior chief hospital corpsman. It is very evident that the extensive training received is an integral facet in career advancement and upward mobility.

Applicants must be in pay grades E-5, E-6, and E-7 and possess a minimum BTB/ASVAB score of 110. More detailed information can be found in the *Catalog of Navy Training Courses* (CANTRAC) NAVEDTRA 10500 or from your command career counselor. Special attention is invited to hospital corpsmen having NEC HM-8425, advanced hospital corpsman, inasmuch as this is a prerequisite for nuclear submarine medicine technician training.

• **Hospital Corps NEC's HM-8492 and HM-8493.** A continuous critical need exists for both the Special Operations Technician (HM-8492) and the Medical Deep Sea Diving Technician (HM-8493) in support of special warfare missions and filling vacant billets. These two unique NEC's require applicants who possess exceptional mental and physical abilities and have an earnest desire to excel professionally.

Applicants for special operations technician must be in pay grades E-2 through E-7 and volunteer in accordance with MILPERSMAN (NMP) Article 1420160.

Applicants for medical deep sea diving technician must be in pay grades E-4, E-5, or E-6.

Additional prerequisites and requirements can be found in the *Catalog of Navy Training Courses* (CANTRAC) NAVEDTRA 10500.

Notes & Announcements

In Memoriam

CAPT **Lawrence P. McDonald,** MC, USNR-R, Congressman from Georgia, was killed in the downing of Korean Air Lines Flight 007 on 1 Sept 1983.

Born in Atlanta, GA, on 1 April 1935, Dr. McDonald recived his M.D. degree from Emory University School of Medicine in 1957.

Dr. McDonald served 4 years in the Navy, completing a 1-year rotating internship at the National Naval Medical Center, now the Naval Medical Command, National Capital Region, Bethesda, MD, and graduating from the School of Aviation Medicine, Pensacola, FL. He was then assigned as a flight surgeon to the U.S. Base, Keflavik, Iceland. For his service there, he received the Air Force Commendation Medal. He completed his tour of duty as a lieutenant commander.

After 2 years of general surgery residency at Grady Memorial Hospital, Atlanta, GA, Dr. McDonald spent 3 years in further residency training in urology at the University of Michigan Hospital, Ann Arbor, MI. He was a junior member of the McDonald Urology Clinic, Atlanta, before his election to Congress in 1974. He was a member of several medical associations, including the Association of American Physicians and Surgeons, the Association of Clinical Urologists, the Medical Association of Georgia, the Medical Association of Atlanta, and the Atlanta Urological Society. He also served on the Georgia State Medical Education Board from 1969-74 as acting chairman and vice chairman.

In Congress, Representative McDonald was a member of the House Armed Services Committee, its Research and Development Subcommittee, and its Special Subcommittee on NATO Standardization, Interoperability and Readiness.

Otolaryngology Course

The Tenth Annual Symposium on EAR, NOSE AND THROAT DISEASES IN CHILDREN: A 1983 UPDATE, Including the Most Recent Results of the Pittsburgh and Boston Studies of Ear and Sinus Disease and Tonsillectomy and Adenoidectomy will be held 10-14 Dec 1983 at The Breakers, Palm Beach, FL.

An update and review of the diagnosis and management of ear, nose, and throat diseases in the treatment of children will be presented through:

- Simultaneous scientific sessions for pediatricians and otolaryngologists,
- Combined sessions on recent advances, and
- Panel discussions.

The symposium is certified for 17 hours of continuing medical education credit. There will be a tuition fee of $250 for physicians and $185 for residents.

Travel and hotel arrangements may be made directly to The Pittsburgh Travel House, 3510 Fifth Avenue, Pittsburgh, PA 15213.

For further information contact Department of Otolaryngology, Children's Hospital of Pittsburgh, 125 DeSoto Street, Pittsburgh, PA 15213. Telephone: Commercial (412) 647-5465.

Critical Care Medicine

A National Institutes of Health Consensus Statement on Critical Care Medicine now may be obtained from the NIH Office of Medical Applications of Research.

The report was prepared by a panel of experts which considered scientific evidence presented at a NIH consensus development conference. It contains recommendations and conclusions concerning critical care medicine.

Consensus conferences bring together researchers, practicing physicians, representatives of public interest groups, consumers, and others to carry out scientific assessments of drugs, devices, and procedures in an effort to evaluate their safety and effectiveness.

Free copies of the Consensus Statement on Critical Care Medicine are available from Michael J. Bernstein, Office of Medical Applications of Research, Building 1, Room 216, National Institutes of Health, Bethesda, MD 20205.

Help for Genetic Birth Disorder

Neurofibromatosis (N.F.) is one of the most common and most commonly misdiagnosed genetic birth disorders. N.F. can cause disfigurement, blindness, crippling, loss of hearing, and death. Symptoms include small growths on or under the skin, curvature of the spine (however slight), one part of the body larger than the others, growth too fast or too slow, freckle-colored birthmarks, or a learning disability.

For further information write to N.F. Foundation, 70 West 40th Street, New York, NY 10018.

Zero Tolerance

In December 1982 the Commanding Officer, Naval Health Sciences Education and Training Command advised each scholarship student of the Chief of Naval Operations' policy on the use of illicit drugs. All personnel in the Armed Forces Health Professions Scholarship Program and all others should be aware that this policy is one of ZERO tolerance and applies equally to those students attending civilian schools under Navy sponsorship as it does to members of flight crews or the crews of naval vessels. Students who have reported to the program since December 1982 will be similarly notified in the near future. When it comes to drugs—BE SMART, DON'T START.

In Memoriam—Beirut 1983

Creator, Father, who first breathed
in us the life that we received,
By power of thy breath restore
the ill, and men with wounds of war.
Bless those who give their healing care
that life and laughter all may share.

Navy Hymn (Medical Verse)

To the medical personnel who made the supreme sacrifice and gave their lives in the honored service of our Nation.

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